REMARKS

Claims 1-18 are pending in this application. By the Office Action, claims 1 and 2 are objected to based on minor typographical errors, and claims 1-18 are rejected under 35 U.S.C. § 103(a). By this Amendment, claims 1 and 2 are amended. Support for the amendments can be found in the specification at, for example, page 7, lines 1-5, and original claim 3. No new matter is added. Reconsideration of the application based upon the above amendments and the following remarks is respectfully requested.

I. Claim Objections

Claims 1 and 2 are objected to due to minor typographical errors. The Examiner points out that claims 1 and 2 fail to end with a period. Claims 1 and 2 have been amended in accordance with the Examiner's helpful suggestion.

II. Rejections Under 35 U.S.C. § 103(a)

A. Nakamura

Claims 1-18 are rejected under 35 U.S.C. § 103(a) over Nakamura *et al.* ("Nakamura"). Applicants respectfully traverse the rejection.

Independent claims 1, 2 and 3 of the present application are directed to specific glass compositions, having high dielectric constants. Each of independent claims 1-3 specify, *inter alia*, a glass having component compositions of P_2O_5 within a range of 5%-25%, Nb_2O_5 within a range of 35%-65%, Nb_2O_5/(BaO+SrO) within a range of 0.85-2.20, and $Li_2O+Na_2O+K_2O$ within a range of 0%-3%. Claims 1 and 2 further specify that BaO+SrO is within a range of 21%-50%, while claim 3 specifies that BaO is within a range of 21%-50%. Such glass compositions are nowhere taught or suggested by any of the cited references.

The composition ranges described in Nakamura are too broad to support a prima facie case of obviousness. MPEP 2144.05 states "if the reference's disclosed range is so broad as to encompass a very large number of possible distinct compositions, this might present a

situation analogous to the obviousness of a species when the prior art broadly discloses a genus." However, such a broad range or genus does not render obvious all of the species within that range or genus. For example, MPEP 2144.08 specifically refers to *In re Baird*, 16 F.3d 380, 382 29 USPQ2d 1550, 1552 (Fed. Cir. 1994), which states "[t]he fact that a claimed compound may be encompassed by a disclosed generic formula does not by itself render that compound obvious."

Nakamura broadly specifies that P_2O_5 falls within a range of 10% to 72%, $R^{II}O$ falls within a range of 0% to 47%, and R^{I}_2O falls within a range of 0% to 41% (Nakamura, col. 1, lines 55-68; col. 2, lines 1-16). In Nakamura, $R^{II}O$ is MgO, CaO, SrO, or BaO or any combination of two or more thereof, and R^{I}_2O is Li_2O, Na_2O, K_2O or any combination of two or more thereof (Nakamura, col. 1, lines 55-68; col. 2, lines 1-16). Nakamura's formulas provide an extremely large (and virtually limitless) number of possible distinct compositions, such as where specific types and amounts of the R^{I}_2O $R^{II}O$ must be selected, and thus it would not have been obvious for a person skilled in the art to select Applicants' specific claimed compositions from Nakamura's broad disclosure.

Comparing the instant claims to the composition of Nakamura, Applicants specifically claim BaO and SrO (claims 1, 2, and 3), and further BaO+SrO (claims 1 and 2) as the possible compositions represented by "$R^{II}O$". Applicants also further limit the claimed compositions to much narrower ranges of P_2O_5 and $Li_2O+Na_2O+K_2O$. The instant claimed glass compositions are more limited in their content ranges to provide a P_2O_5 range that corresponds to only 32.25% of Nakamura's range for P_2O_5 and a $Li_2O+Na_2O+K_2O$ range that corresponds to only 7.32% of Nakamura's range for "R^{I}_2O." Thus, the instant claims cover only a small fraction of the broad disclosure of Nakamura.

Nakamura also discloses several examples of preferred compositions (Nakamura, Table 1). None of the preferred compositions disclosed by Nakamura fall within the claimed

composition ranges. The claims recite a $Nb_2O_5/(BaO+SrO)$ range of 0.85 to 2.20, and a $Li_2O+Na_2O+K_2O$ range of 0% to 3%. However, the examples in Nakamura disclose $Nb_2O_5/(BaO+SrO)$ as either 0 or falling within a range of 8 to 11.68. The examples also disclose a $Li_2O+Na_2O+K_2O$ range of 11% to 32.3% (Nakamura, Table 1). All of Nakamura's examples fall well outside the composition ranges claimed by Applicants, and would not have rendered obvious the presently claimed glass compositions.

The present claims also specifically require BaO and SrO (claims 1-3), and additionally BaO+SrO (claims 1-2) as the corresponding components of "$R^{II}O$" because these components are unexpectedly effective in increasing the dielectric constant of the glass. In order to sufficiently increase the dielectric constant of the glass, the BaO or BaO+SrO range should be between about 21% to about 50%. Additionally, in order to increase the dielectric constant while retaining the stability of the glass, the value of $Nb_2O_5/(BaO+SrO)$ should be between about 0.85 to about 2.20. Furthermore, $Li_2O+Na_2O+K_2O$ are limited to not more than about 3% of the composition because these alkali metal components increase the mobility of the ions in the glass, which leads to lower electrical resistivity and a dielectric breakdown of the glass. However, Nakamura teaches a high dispersion optical glass that includes a large amount of alkali metals in combination with ZnO in order to achieve a high refractive index by increasing the amount of Nb_2O_5 that can be contained in the glass (Nakamura, col.2, lines 25-43). Nakamura does not teach or suggest that, or even how, the materials should be selected to provide a high dielectric constant, as in the claimed invention.

Accordingly, Nakamura does not teach or suggest a glass according to the specifically selected compositions, as claimed. Independent claims 1-3, and thus their dependent claims, are patentable over the cited reference. Reconsideration and withdrawal of the rejection are respectfully requested.

B. Ishibashi

Claims 1-18 are rejected under 35 U.S.C. § 103(a) over Ishibashi *et al.* ("Ishibashi"). Applicants respectfully traverse the rejections.

Independent claims 1-3 are discussed above.

Like Nakamura, the composition and ranges described in Ishibashi are also too broad to support a prima facie case of obviousness. In particular, Ishibashi broadly specifies that P_2O_5 falls within a range of 20% to 50%, $R^{II}O$ falls within a range of 1% to 31%, and R^{I}_2O falls within a range of 1% to 31% (Ishibashi, col. 1, lines 46-55; col. 2, lines 59-68). In Ishibashi, $R^{II}O$ is one or more of MgO, CaO, SrO, BaO, ZnO and PbO, and R^{I}_2O is one or more of Li_2O, Na_2O, and K_2O (Ishibashi, col 7, lines 5-10). Like Nakamura, Ishibashi's disclosure provides an extremely large, and virtually limitless, number of possible distinct compositions, and thus it would not have been obvious for a person skilled in the art to select Applicants' specific claimed compositions from Ishibashi's broad disclosure.

Comparing the instant composition to the composition of Ishibashi, Applicants specifically claim BaO and SrO (claims 1-3), and BaO+SrO (claims 1-2) as the possible compositions represented by "$R^{II}O$". Applicants also further limit the claimed compositions to narrower ranges of P_2O_5 and $Li_2O+Na_2O+K_2O$. The claimed compositions are more limited in its content ranges to provide a P_2O_5 range that corresponds to only 16.67% of Ishibashi's range for P_2O_5 and a $Li_2O+Na_2O+K_2O$ range that corresponds to only 6.67% of Ishibashi's range for "R^{I}_2O." Thus, the instant claim covers only a small fraction of the broad disclosure of Ishibashi.

Ishibashi also discloses several examples of preferred compositions (Ishibashi, Table 1). None of the compositions disclosed by Ishibashi fall within Applicants claimed composition ranges. The instant claims require a Nb_2O_5/(BaO+SrO) range of 0.85 to 2.20, and a $Li_2O+Na_2O+K_2O$ range of 0% to 3%. However, the examples in Ishibashi disclose

Nb_2O_5/(BaO+SrO) as falling within a range of 3.2 to 20.18 (Ishibashi, Table 1). The examples also disclose a $Li_2O+Na_2O+K_2O$ range of 12.9% to 30.79% (Ishibashi, Table 1). All of Ishibashi's examples fall outside the composition ranges of the instant claims, and would not have rendered obvious the claimed compositions.

As discussed above, Applicants specifically claim these composition ranges because these ranges are effective in increasing the dielectric constant while retaining the stability of the glass. These compositions also limit the alkali metal components in the glass to prevent a drop in the electrical resistivity and dielectric breakdown of the glass. However, Ishibashi also teaches a high dispersion optical glass that includes a large amount of alkali metals in order to achieve a high refractive index by increasing the amount of Nb_2O_5 that can be contained in the glass (Ishibashi, col. 1, lines 40-46; col.2, lines 8-64). Ishihashi does not teach or suggest that, or even how, the materials should be selected to provide a high dielectric constant, as in the claimed invention.

Accordingly, Ishibashi does not teach or suggest a glass according to the specifically selected compositions, as claimed. Independent claims 1-3, and thus their dependent claims, are patentable over the cited reference. Reconsideration and withdrawal of the rejection are respectfully requested.

C. Nakahata

Claims 1-18 are rejected under 35 U.S.C. § 103(a) over Nakahata *et al.* ("Nakahata"). Applicants respectfully traverse the rejection.

Independent claims 1-3 are discussed above.

Like Nakamura and Ishihashi, above, the composition ranges described in Nakahata also do not support a prima facie case of obviousness. Nakahata specifies that BaO falls within a range of 0% to 22%, and Li_2O+Na_2O falls within a range of 2.5% to 15% (Nakahata, col 3, lines 1-15).

Comparing the instant claim to the composition of Nakahata, Applicants specifically claim a BaO+SrO composition range (claims 1-2) or a BaO range (claim 3) of 21%-50%. Therefore, Applicants' BaO+SrO or BaO composition range is significantly different from Nakahata's BaO composition range of 0% to 22%. The BaO+SrO or BaO composition ranges corresponds to only 4.5% of Nakahata's BaO range. Applicants also claim a much narrower range for the sum of $Li_2O+Na_2O+K_2O$. Nakahata claims a Li_2O+Na_2O range of 2.5% to 15% whereas Applicants claim a $Li_2O+Na_2O+K_2O$ of 0%-3%. The $Li_2O+Na_2O+K_2O$ composition range corresponds to only 4% of Nakahata's Li_2O+Na_2O range. Thus, Applicants' composition overlaps only a small fraction of the composition disclosed by Nakahata.

Nakahata also discloses several examples of preferred compositions (Nakahata, Table 1). None of the compositions disclosed by Nakahata fall within Applicants claimed composition ranges. The instant disclosure claims a Nb_2O_5/(BaO+SrO) range of about 0.85 to about 2.20, and a $Li_2O+Na_2O+K_2O$ range of about 0% to about 3%. However, the examples in Nakahata disclose a Nb_2O_5/(BaO+SrO) range of 1.4 to 39.83 and a $Li_2O+Na_2O+K_2O$ range of 6% to 13.5% (Nakahata, Table 1). In Nakahata, only example 12 falls within Applicants' Nb_2O_5/(BaO+SrO) composition range having a value equal to 1.4. However, example 12 has a Nb_2O_5 value equal to 31.0% which falls outside of Applicants claimed Nb_2O_5 composition range of 35%-65%. Nakahata's examples also disclose a $Li_2O+Na_2O+K_2O$ range of 6% to 13.5% (Nakahata, Table 1). Thus, all of Nakahata's examples fall outside the composition ranges of the instant claims, and would not have rendered obvious the claimed glass compositions.

As discussed above, Applicants specifically claim these composition ranges because these ranges are effective in increasing the dielectric constant of the glass while retaining the stability of the glass. These compositions also limit the alkali metal components in the glass to prevent a drop in the electrical resistivity and dielectric breakdown of the glass. However,

Nakahata teaches a high dispersion optical glass that is capable of carrying out precision molding at low temperatures while having a high refractive index. (Nakahata, col. 2, lines 24-30). Nakahata does not teach or suggest that, or even how, the materials should be selected to provide a high dielectric constant, as in the claimed invention.

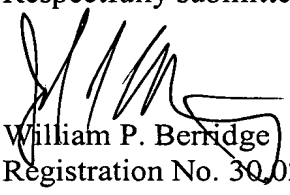
Thus, Nakahata does not teach or suggest a glass according to the specifically selected compositions, as claimed. Independent claims 1-3, and thus their dependent claims, are patentable over the cited reference. Reconsideration and withdrawal of the rejection are respectfully requested.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of this application are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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